

### REMARKS

The applicants have carefully reviewed and considered the Office Action of June 13, 2008. The various issues raised in the Office Action are discussed in detail in the subsections presented below.

Claims 12 – 21 have been cancelled without prejudice or disclaimer of the subject matter recited therein. Claims 1 – 11 remain in the case.

#### **A. ELECTION/RESTRICTIONS**

The Office noted non-elected claims remain withdrawn and the restriction made final. The Office further noted these claims should be canceled. Accordingly Claims 12 – 21 are hereby canceled without prejudice to the filing of one or more Divisional applications drawn to the subject matter of these claims.

#### **B. THE REJECTION OF CLAIM 2 UNDER 35 U.S.C. §112 SECOND PARAGRAPH AS BEING INDEFINITE**

The Office rejected Claim 2 as vague and indefinite because the Markush group is of improper format and hence intended scope is unclear. Claim 2 has accordingly been amended to more clearly state that "the powder is selected from the group consisting of particles of a thermoplastic material and particles of a thermosetting material."

#### **C. THE REJECTION OF CLAIMS 1, 2, 4 AND 6 UNDER 35 U.S.C. §102(b) AS ANTICIPATED BY U.S. PATENT NO. 4,496,415 TO SPRENLING**

The Office states that Sprengling teaches a method for forming "composite" sheets comprising providing a continuous sheet (=mat), fibrous substrate 2 (cited as wovens, fabrics of cotton, polyester, glass (Claim 6), etc. col. 3, 34 – 37 and elsewhere) by "depositing" it onto sheet 1 (=substrate); applying an organic dry resin powder 7; applying heat and pressure ("compressed") to cause the resin to flow into the fibrous materials to wet and adhere to the fibers; inherently cooling the product to provide an end-product with utility and which is also cut as desired via means 32 to form products 33, inherently in sheet form given the process (col. 5, 3 – 53). The Office concluded the reference thus meets all limitations of Claim 1.

The Office goes on to state thermoset resins including epoxy are cited (col. 3,

46 ; top col. 4) per claims 2, 4.

Applicants submit that Sprengling teaches a different method performed to achieve an entirely different result.

Sprengling teaches a method that begins with sheets of fibrous material "such as cellulose, paper, cotton fabric, polyester fabric, polyethylene terephthalate porous sheet, polyamide porous sheet, mica paper, glass fabric, and the like." (column 3, lines 35 – 38)

Applicants submit that Sprengling fails to teach or suggest combining these materials into a single web for use as a starting material, let alone a process that begins with "a web of yarns ... comprising at least one organic material and at least one reinforcing material" as recited in Claim 1.

In Sprengling's method, a thermosettable, B-staged dry resin powder is applied to each layer of fibrous substrate, e.g. "... multiple layers of substrate each with resin deposited are used" (column 3, lines 19 – 22) and "the powder 7 will be disposed between sheets 1 and 2." (column 4, lines 6- 7) Sprengling teaches a specific particle size range in order "to get adequate sifting into the substrate or an even distribution of the resin particles." (column 4, lines 6 – 7) This is done "to cause melt flow impregnation of the B-staged thermosettable resin particles on top of and sifted within the porous substrate sheets, i.e., flow of resin into and through the fibrous structure of the porous sheets to wet and bond together the individual fibers of each sheet and to also bond the individual sheets together." (column 5, lines 21 – 30)

Sprengling further teaches "where a consolidated material is required consisting of sheet 1 coated with resin 7... sheet 1 should be fairly porous, and the resin 7 would be of fairly small particle size, so that, preferably, it could sift in large part into the interior of the sheet." (column 5, lines 46 – 50) The sheet is then heat and pressure consolidated to melt flow the resin powder and "impregnate the sheet." (column 5, lines 52 – 53)

Clearly, then, it is an object of Sprengling to distribute the resin throughout the laminate to bind together not only the fibrous sheets but also the individual fibers of each sheet.

In contrast, as noted above, Applicants' invention begins with "a web of yarns ... comprising at least one organic material and at least one reinforcing material" as

recited in Claim 1. Per page 4, lines 24–27 of Applicants' disclosure, it is this organic material of the web which forms the matrix of the composite sheets produced by the invention, a feature neither taught nor suggested by Sprengling.

In further contrast, per page 3, lines 35–36 of Applicants' disclosure, Applicants' invention is a process of making composite sheets which advantageously have a coating improving the surface appearance. Toward that end, Applicants deposit "a powder of an organic material capable of forming a coating layer" on the web as recited in Claim 1. As noted above, the powder employed by Sprengling serves an entirely different purpose. Sprengling neither teaches nor suggests depositing a powder on a web to form a coating layer thereon.

In light of the above, Applicants submit that Claim 1 is neither anticipated nor obvious in view of Sprengling, and is in condition for allowance. Claims 2, 4 and 6 depend directly or indirectly from Claim 1, and are therefore also in condition for allowance for at least the above reasons.

**D. THE REJECTION OF CLAIMS 5 AND 7 - 11 UNDER 35 U.S.C. §103(a)  
AS BEING UNPATENTABLE OVER U.S. PATENT No. 4,496,415 TO  
SPREGLING, ET AL**

The Office stated that Sprengling is cited for the same reasons previously discussed.

Per Claims 5, 7, 9; the Office concludes the amount and types of reinforcing material, and coating layer thickness or amount applied would obviously have been dependant upon the end-use, with optimization determined by routine experimentation.

Per Claim 10, the Office states it is apparent the stacking of fibrous structures to form the laminate constitutes the "at least one intermediate structure" of Claim 10, since one layer would be intermediate plural of other layers.

The Office goes on to state the product structure comprises fibrous layers and organic films therein and in between per Claim 11.

The Office further states the selection of suitable amounts of each ingredient in a formulation is deemed obvious optimization, In re Peterson 65 USPQ2d 1379.

The Office concludes it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sprengling by

optimizing amount and types of reinforcing material, and coating layer thickness or amount applied, and other obvious parameters to form a desired end product.

Regarding Claim 5, as noted above, Applicants submit that Sprengling fails to teach or suggest a process that begins with "a web of yarns ... comprising at least one organic material and at least one reinforcing material" as recited in Claim 1, from which Claims 5 indirectly depends, let alone a process that begins with the very particular web of yarns recited in dependent Claim 5, i.e. wherein "the web comprises between 20 and 90%, preferably between 30 and 85%, by weight of reinforcing material." Applicants therefore submit that Claim 5 is in condition for allowance in its own right.

Regarding Claim 7, the process of Applicants' invention employs "a web of yarns ... comprising at least one organic material and at least one reinforcing material". As noted earlier, it is this organic material of the web which forms the matrix of the composite sheets, a feature neither taught nor suggested by Sprengling. In particular, Applicants submit that nowhere does Sprengling teach or suggest a process that employs a web of intermingled yarns of glass filaments and filaments of a thermoplastic organic material, let alone the very particular web of yarns recited in Claim 7, i.e. wherein "the web comprises at least 50% by weight of intermingled yarns of glass filaments and of filaments of a thermoplastic organic material." One cannot optimize a property that is not taught. Applicants therefore submit that Claim 7 is in condition for allowance in its own right.

Regarding Claim 8, Claim 8 depends from Claim 7, and therefore, Applicants submit, Claim 8 is also in condition for allowance.

Regarding Claim 9, as noted above, Sprengling teaches distributing a powder resin throughout a laminate article to bind sheets and individual fibers together. Sprengling neither teaches nor suggests depositing a powder on a web to form a final coating layer thereon, let alone the very particular step of depositing the powder "to produce a final coating layer with a thickness of between 0.3 and 1 mm, preferably between 0.6 and 0.8 mm" as recited in Claim 9. Applicants' invention advantageously produces a composite sheet with a coating improving the surface appearance, a feature neither taught nor suggested by Sprengling. One cannot optimize a final coating layer produced by depositing a powder, if such a final coating layer is not taught. Applicants therefore submit that Claim 9 is in condition

for allowance in its own right.

Regarding Claim 10 and 11, Applicants note that Claims 10 and 11 depend directly or indirectly from Claim 9. Therefore, Applicants submit, Claims 10 and 11 are also in condition for allowance.

**E. THE REJECTION OF CLAIM 3 UNDER 35 U.S.C. §103(a) AS BEING UNPATENTABLE OVER U.S. PATENT NO. 4,496,415 TO SPRENGLING, ET AL IN VIEW OF U.S. PATENT NO. 6,998,155 TO HAGGQUIST ET AL**

The Office cited Sprengling for the same reasons previously discussed. The Office conceded that while thermoset resins are explicitly cited and exemplified, thermoplastic resins are not. The Office takes the position that the use of any resin to act as the desired function of the resins of Sprengling would have been obvious modification within the purview of one skilled in the art.

The Office goes on to state, nonetheless Haggquist is cited because it teaches a similar concept of applying resin particles into a continuous woven material which is subsequently fixed. The Office further states that, as apparent from the laundry list on col. 7 – bridging 8, either thermoplastic or thermoset particles can be successfully applied, establishing an equivalence that either may be employed for applications to wovens, sheets, yarns, etc (col. 3, 17 – 22). The Office concludes it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Sprengling by incorporating thermoset or thermoplastic particles given the equivalence of use disclosed by Haggquist because of the expectation of achieving successful and predictable end results.

As Applicants note above, Sprengling teaches a different process performed to achieve an entirely different result. Applicants therefore submit that the desired function of the resins of Sprengling is not a desired function with respect to Applicants' invention.

Applicants note that Haggquist et al. teach "a process for producing woven materials incorporated with a particulate solid". (Abstract) The particulate solid may, for example, have odor-absorbing properties particularly useful in garment manufacture. In one embodiment, "a chemical binder is used to fix the particulate solid on and/or in a woven material". (column 7, lines 60 – 62) Applicants submit

that the sole function of the list of suitable chemical binders, beginning in column 7 and ending in column 8 of Haggquist et al., is to bind a particulate solid on and/or in a woven material, and so may be assumed to be equivalent only for that purpose.

In contrast, Applicants note that the powder employed in Applicants' invention is, in and of itself, capable of forming a coating layer, a coating layer which advantageously improves surface appearance of a composite sheet. In particular, Applicants submit that Haggquist et al. nowhere teach or suggest a powder capable of forming a coating layer wherein the powder is "selected from polyolefins, polyamides, polyesters and PVC" as recited in dependent Claim 3.

In view of the above, Applicants submit that Claim 3 is in condition for allowance in its own right.

**F. CONCLUSION**

In summary, all the pending claims patentably distinguish over the prior art and should be formally allowed. Upon careful review and consideration it is believed the Examiner will agree with this proposition. Accordingly, the early issuance of a formal Notice of Allowance is earnestly solicited.

Any fees required in connection with this Response may be debited to Deposit Account 50-0568.

Respectfully submitted,

By: Kathryn W. Grant  
Kathryn W. Grant  
Reg. No. 33,238

Owens Corning  
Patent Dept. Bldg. 21-0  
2790 Columbus Road  
Granville, Ohio 43023  
(740) 321-7213

Dated: Sept. 10, 2008